# Internal Cabling Guide for the HP Smart Array 5300 Series Controller on an HP Integrity Server rx8620

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Part Number 5990-8202

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# Introduction

This document describes how to cable an HP Smart Array 5300 controller card, Ultra160 RAID card (HP product number A9525A/A9826A), to the internal hard drives of an HP Server rx8620.

**NOTE:** These instructions do not apply if you are connecting the HP Smart Array 5300 or Smart Array 6400 controller cards to an external mass storage box. Proceed to the *HP Smart Array 5300 Controller User Guide* that shipped with your HP Smart Array 5300 controller card.

The Smart Array 5300 Series controller cards are comprised of two models: the 5302 and the 5304. Model 5302 has two Wide Ultra160 SCSI channels and 128 MB of cache. Model 5304 has four Wide Ultra160 SCSI channels and 256 MB of cache.

| Product Number | Description |
|---|---|
| A9825A | SA5302/128MB |
| A9826A | SA5304/256MB |

Before you begin, you will need:

Cable kit (A7027-63001).

Smart Array 5300 controller cards (refer to Figures 1 and 2).

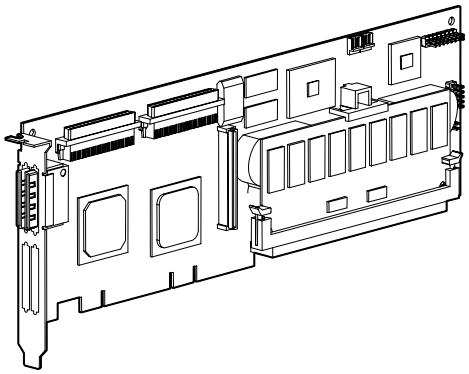


**Figure 1: The Smart Array 5302 controller card**

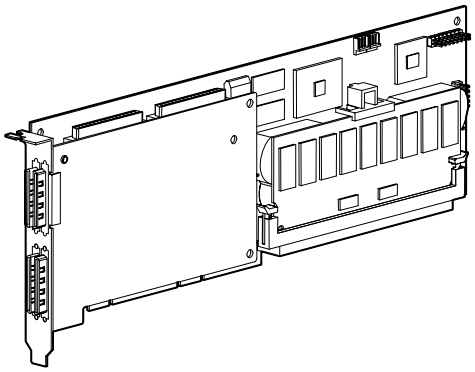
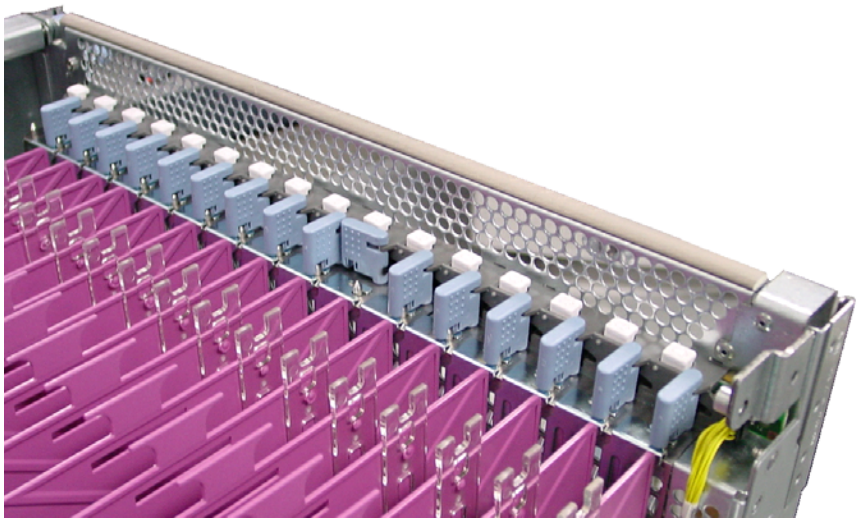


**Figure 2: The Smart Array 5304 controller card**

# Installing the HP Smart Array 5300 Controller Card

1. If the server is running, shut down the OS, power off the server, and unplug the power cord.
2. Remove the top cover of the server.
3. The HP Smart Array 5300 controller card must be installed in PCI slot 8 for internal RAID. If another PCI card is located in slot 8, remove that card and relocate it to another slot. Twist the blue paddle that also locks the PCI card in place by the bulkhead. Once the card is unlatched the tabs on the insulator/dividers are pulled to unseat the card. Insert the card in the empty slot. See picture below.



4. When the card is installed, proceed to the next section.

# Cabling the HP Smart Array 5300 Controller Card to the Server

## Default SCSI Cabling

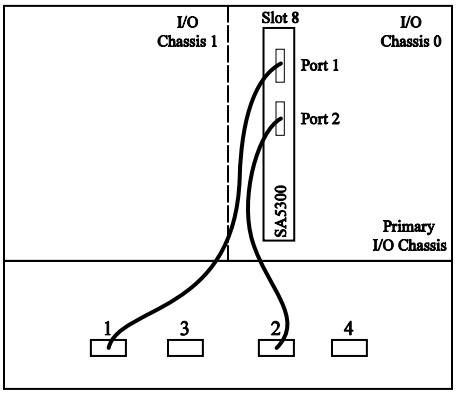
From the factory, the internal hot plug drives for the HP Integrity server rx8620 are connected to the integrated SCSI as follows from the front of the server:

1. The top left hard drive has a SCSI connector cabled to the internal SCSI cell 0.
2. The top right hard drive has a SCSI connector cabled to the internal SCSI cell 0.
3. The bottom left hard drive has a SCSI connector cabled to the internal SCSI cell 1.
4. The bottom right hard drive has a SCSI connector cabled to the internal SCSI cell 1.

# Recabling for RAID

To use RAID with your hot plug drives, you will need to disconnect the internal SCSI cables from their embedded controller and use the Cable kit (A7027-63001). Follow the instructions below.

## Single Partition Configuration




| | | |
|---|---|---|
| Cell 0 | 1 | 2 |
| Cell 1 | 3 | 4 |

HDDs

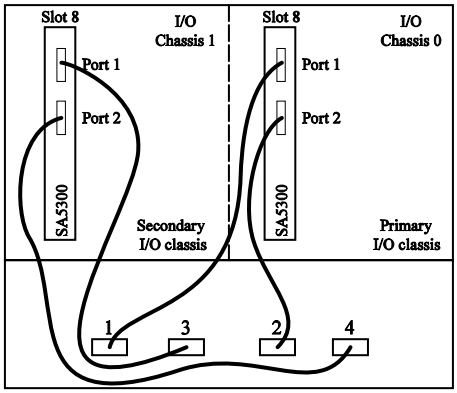
## Setting Up RAID cabling on the top left and top right hot plug hard drives from the front of the server

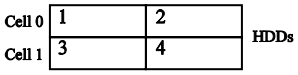
1. Be sure the HP Smart Array 5300 controller card is installed in PCI slot 8 of the Primary I/O Chassis (I/O Chassis 0). Refer to the *HP Smart Array 5300 User Guide*.
2. Retrieve two cables from the cable kit (A7027-63001).
3. Identify the new cables using the colored cable ties which are also contained in the cable kit (use two of the same color, one on each end).

4. Plug the end of one of the cables with the pull-tab into the SCSI connector Port 1 on the Smart Array card (Port 1 is near the bracket). Repeat for SCSI connector Port 2 (Port 2 is near the center of the board).
5. Route the other end of the cables out through the left hand side of the server.
6. Route the cables towards the front of the server and over to the mass storage connectors.
7. Unplug the existing SCSI ribbon cable for the top left HDD (utilize the label behind the connectors to determine which connector routes to which drive).
8. Plug the new cable from the Smart Array card Port 1 into the mass storage connector for the top left HDD.
9. Unplug the existing SCSI ribbon cable for the top right HDD (utilize the label behind the connectors to determine which connector routes to which drive).
10. Plug the new cable from the Smart Array card Port 2 into the mass storage connector for the top right HDD.
11. Arrange the new cable so that all the slack is located in the PCI area.
12. Fold the cable slack and wrap a Kwik Wrap around it to maintain the slack (cable slack allows for the servicing of other PCI cards).
13. Leave the un-plugged SCSI ribbon cable to rest just in front of the SCSI connector.

**Figure 3: Single Partition Configuration**

## Dual Partition Configuration




## Setting Up RAID cabling on the top right and top left hot plug hard drives

1. Be sure the HP Smart Array 5300 controller card is installed in PCI slot 8 of the Primary I/O Chassis (I/O Chassis 0). Refer to the *HP Smart Array 5300 User Guide*.
2. Retrieve two cables from the cable kit (A7027-63001).
3. Identify the new cables using the colored cable ties which are also contained in the cable kit (use two of the same color, one on each end).
4. Plug the end of one of the cables with the pull-tab into the SCSI connector Port 1 on the Smart Array card (Port 1 is near the bracket). Repeat for SCSI connector Port 2 (Port 2 is near the center of the board).
5. Route the other end of the cables out through the left hand side of the server.
6. Route the cables towards the front of the server and over to the mass storage connectors.
7. Unplug the existing SCSI ribbon cable for the top left HDD (utilize the label behind the connectors to determine which connector routes to which drive).
8. Plug the new cable from the Smart Array card Port 1 into the mass storage connector for the top left HDD.
9. Unplug the existing SCSI ribbon cable for the top right HDD (utilize the label behind the connectors to determine which connector routes to which drive).
10. Plug the new cable from the Smart Array card Port 2 into the mass storage connector for the top right HDD.
11. Arrange the new cable so that all the slack is located in the PCI area.
12. Fold the cable slack and wrap a Kwik Wrap around it to maintain the slack (cable slack allows for the servicing of other PCI cards).
13. Leave the un-plugged SCSI ribbon cable to rest just in front of the SCSI connector.

## Setting Up RAID cabling on the bottom left and bottom right hot plug hard drives

1. Be sure the HP Smart Array 5300 controller card is installed in PCI slot 8 of the secondary I/O Chassis (I/O chassis 1). Refer to the *HP Smart Array 5300 User Guide*.
2. Retrieve two cables from the cable kit (A7027-63001).
3. Identify the new cables using the colored cable ties which are also contained in the cable kit (use two of the same color, one on each end).
4. Plug the end of one of the cables with the pull-tab into the SCSI connector Port 1 on the Smart Array card (Port 1 is near the bracket). Repeat for SCSI connector Port 2 (Port 2 is near the center of the board).
5. Route the other end of the cables out through the left hand side of the server.
6. Route the cables towards the front of the server and over to the mass storage connectors.
7. Unplug the existing SCSI ribbon cable for the bottom left HDD (utilize the label behind the connectors to determine which connector routes to which drive).
8. Plug the new cable from the Smart Array card Port 1 into the mass storage connector for the bottom left HDD.
9. Unplug the existing SCSI ribbon cable for the bottom right HDD (utilize the label behind the connectors to determine which connector routes to which drive).
10. Plug the new cable from the Smart Array card Port 2 into the mass storage connector for the bottom right HDD.
11. Arrange the new cable so that all the slack is located in the PCI area.
12. Fold the cable slack and wrap a Kwik Wrap around it to maintain the slack (cable slack allows for the servicing of other PCI cards).
13. Leave the un-plugged SCSI ribbon cable to rest just in front of the SCSI connector.

**Figure 4: Dual Partition Configuration**

## Cabling the HP Smart Array 5300 Controller Card to the Server Expansion Unit (SEU)

The PCI-X I/O and SCSI HDD Backplane architecture are identical between the rx8620 server and the Server Expansion Unit. Therefore, to recable the Server Expansion Unit for RAID, please follow the instructions above that were used for recabling the rx8620 server. Adding the Server Expansion Unit will allow for a 3 Partition or a 4 Partition configuration.

## IM7 Hard Disk Drive Mapping

The above internal drive configuration will produce the following mapping in IM7 when events occur on a target HDD .

| **SA5300 Card Location** | | | | **HDD Identification** | | | | **HDD Location** |
|---|---|---|---|---|---|---|---|---|
| **Cabinet** | **I/O Bay** | **I/O Chassis** | **Slot** | **Cabinet** | **Cell** | **Port** | **SCSI ID** | **Physical Drive** |
| 0 | 0 | 0 | 8 | 0 | 0 | 1 | 6 | rx8620 Top Left |
| 0 | 0 | 0 | 8 | 0 | 0 | 2 | 6 | rx8620 Top Right |
| 0 | 0 | 1 | 8 | 0 | 1 | 1 | 6 | rx8620 Bottom Left |
| 0 | 0 | 1 | 8 | 0 | 1 | 2 | 6 | rx8620 Bottom Right |
| 8 | 0 | 0 | 8 | 8 | 2 | 1 | 6 | SEU Top Left |
| 8 | 0 | 0 | 8 | 8 | 2 | 2 | 6 | SEU Top Right |
| 8 | 0 | 1 | 8 | 8 | 3 | 1 | 6 | SEU Bottom Left |
| 8 | 0 | 1 | 8 | 8 | 3 | 2 | 6 | SEU Bottom Right |

## Configuring the Server Firmware and Software for RAID

To complete the installation and set up RAID for your server's internal hot swap drives, you will need to follow the instructions in the document listed below.

## Where to Go for Additional Help

To complete the installation and set up RAID for your server's internal hot swap drives, and to perform the following tasks, follow the instructions in the *Smart Array 5300 Controller User Guide*.

Configure your HP Smart Array 5300 controller card in an HP Integrity server. Use HP Smart Array 5300 utilities and command line options from the EFI Shell.

Install operating system-specific HP Smart Array 5300 utilities and software that help you manage your RAID.

Use operating system-specific HP Smart Array 5300 utilities and software that help you manage your RAID.

Configure the HP Smart Array 5300 for an external RAID storage system.